Alaska Mining Industry
Overview

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Southeast Conference

By

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Agenda

Mining Overview – types of mining, AK mining history
Why do we mine?
Recent Economic Impacts from Mining in AK
Current Alaska Mining Activity
  Operating Mines
  Development Projects
  Major Exploration Projects
  SE AK Mining Projects
Questions
Types of Metal Mining

- Placer/Alluvial Mining
  - Recovery from gravel using gravity separation

- Hardrock/Lode Mining
  - Recovery from rock using explosives and complex recovery systems
3 Periods of AK Mining History

- **From late 1800s until World War II** - mining was the largest industry in Alaska and provided the most jobs.

- **From World War II until 1989** - effectively no hardrock mining in Alaska!

- **From 1989 to Present** - continued steady growth of investment.
Mining has played a significant role in Alaska’s growth and development.

Gold was the reason for the beginning of cities such as Juneau, Douglas, Skagway, Fairbanks and Nome.

Copper mining at Kennecott led to the founding of Cordova as a railroad terminus.

Mining in the Interior, South Central AK, and on the Kenai Peninsula led to the founding of Anchorage as a railroad construction town.
Minerals in Alaska

Alaska Comparisons (with rest of U.S. in 2004)

- Ranked 12th in total value of non-fuel mineral production
- 1st in zinc production
- 1st in silver production
- 2nd in gold production
- 2nd in lead production
Why Do We Mine?

Round Mountain Mine, NV

05/18/2006
Everyone Uses Metals

Each American uses an average of 46,000 lbs of newly mined materials in a year!

How many items in this room contain mined materials?
ECONOMIC AND SOCIAL BENEFITS

- Employment
  - Direct jobs
  - Indirect jobs
- Business opportunities
- Improved Infrastructure,
  - Utilities
  - Transportation
  - Health, safety and education
- Catalyst for other industry
- Tax base – royalties, property taxes, etc.
- Families and communities benefit from job stability
- Strategic benefits
The Economic Impact of Alaska’s Mining Industry

Summary of A Report by the McDowell Group

February, 2006
Key Findings
Alaska’s Mineral Industry Provides:

• High paying jobs — often double the average wage in a region — average wage with overtime over $72,000 in 2005

• Jobs in rural areas — often where few other private sector jobs are available

• Significant local government tax payments

• Significant benefits to Native Corporations — through direct payments, and shareholder jobs
Example of open positions listed on several Alaska mining related websites (Sept. 2006):

- Admin Assistant
- Mechanic/Machinist
- Environmental Engineer
- Core Technician
- Underground Backfill
- Powerhouse Operator
- Electrical Engineer
- Mine Engineer
- Associate Mine Engineer
- Civil Engineer
- Mechanical Engineer
- Underground Electrician
- Underground Miner
- Underground Mechanic
- Safety Coordinator
- Mine Engineer
- Safety and loss Control Manager
- General Mine Foreman
- Experienced Miners
- Mine Engineer (2)
- Senior Exploration Geologist
- Environmental Engineer
- Production Geologist
- Process Control Engineer
- Plant Metallurgical Engineer
- Mobile Equipment Mechanics
- Underground Miners
- Mine Surveyor
Alaska Mineral Industry Value – 2005 (Preliminary)*

- Exploration Expenditures - $101 Million
- Development Expenditures - $295 Million (Pogo and Kensington)
- Production Value - $1.5 Billion
- Total Value - $1.9 Billion

*Source: Rich Hughes, ADCCED
Alaska Mineral Production 1981-2005
Total Value $13.9 Billion*

*Source: ADCCCED/ADDGS
USIBELLI COAL MINE, Inc.

Mining coal in Healy, Alaska for 63 years – Joseph Usibelli, Jr., President

• Current Production Rate 1.5 million tons per year.
  - Approximately 900,000 tons to current domestic customers.
  - Exports to South Korea for over 20 Years and recently to South America.

• Hundreds of years of coal supply at current demand.

• Emissions from coal fired plants are lower today than they were in 1970, even as power produced by these plants has increased by 173%.

• UCM coal has some of the lowest sulfur content in the world.

UCM believes larger coal fired generation capability in Alaska would provide the economic, reliable and clean power needed in our state.

UCM is prepared to meet this future demand: Exploration is underway in the Jumbo Dome area just North of the current mine.
Kennecott Greens Creek Mining Company

- Joint Venture – Kennecott Minerals Company / Hecla Mining Company (70/30 Ownership)
- Underground mine and surface concentrator
- Pristine environmental locale (National Monument)
- Polymetallic ore body (zinc, silver, lead & gold)
- Dore’ and three types of concentrate produced (lead, zinc & bulk)
- Concentrate sold to smelter customers – Japan, Korea, Europe, Canada, Mexico, and China
RED DOG MINE

NANA Regional Corporation is land owner
Teck Cominco is operator
Began production 1989
World’s largest producer of zinc concentrate
400-500 employees and contractors
50-60% NANA shareholder hire
Ships over 1,000,000 tons zinc concentrate from July to Oct
30+ years additional reserves
<table>
<thead>
<tr>
<th>Economic Impact: 1990 - 2004</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NANA Shareholder Wages</strong></td>
</tr>
<tr>
<td><strong>NANA NSR Royalty</strong></td>
</tr>
</tbody>
</table>
The NSR Royalty is shared under (7i) ANSCA provision.
| **NANA JV Companies**       | $267 million |
| **Northwest Arctic Borough** | $48 million |
| **AIDEA (principal and interest for port and road finance)** | $205 million |
• Average annual employment of 411 in 2004 (2nd largest private sector employer in Fairbanks North Star Borough)

• Produced 324,000 oz of gold in 2005
First ore milled on Jan. 12
First Gold pour on February 10, 2006
$347 Million Capital Cost
First Production Stope at Pogo
Contains 3.7M ounces mineable gold reserves
Grade: 0.48 oz/ton
### Pogo Permanent Workforce

76% AK hire as of Jan 25, 2006
175 employees
Full Production – 238 employees
129 non-exempt staff hired to date

<table>
<thead>
<tr>
<th>Position</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Accounting/Purchasing</td>
<td>100%</td>
</tr>
<tr>
<td>Medic</td>
<td>100%</td>
</tr>
<tr>
<td>Labor/Entry Level Miner</td>
<td>100%</td>
</tr>
<tr>
<td>Electrician</td>
<td>88%</td>
</tr>
<tr>
<td>Operator</td>
<td>93%</td>
</tr>
<tr>
<td>Environmental Tech/Plant Operator</td>
<td>91%</td>
</tr>
<tr>
<td>Mechanic and Millwright</td>
<td>65%</td>
</tr>
<tr>
<td>Experienced Underground Miner</td>
<td>21%</td>
</tr>
</tbody>
</table>
Nixon Fork Mining Project

- Operator: Mystery Creek Resources, Inc.
- Anticipated production summer 2006
  - Employment: 58 full time jobs.
  - 2006 Expenditures: $16 Million
  - Reclamation Bond: $3.5 Million
  - Reprocess tailings and mine high grade underground veins
- Mine Life: 2-3 years with current reserves
ROCK CREEK PROJECT
OVERVIEW

- Conventional Open Pit Mine
- Production at two sites projected to begin in 2007
  - Rock Creek
    - Eight miles north of Nome via the Glacier Creek Realignment
    - Private patented and Bering Straits and Sitnasuak Native Corp. land
  - Big Hurrah
    - 50 miles east of Nome via the Council Highway
    - Private patented land
- Nome Utilities power
- 7,000 tonnes per day mill
- Produce approximately 100,000 oz per year
- Projected mine life: 4 – 5 years
ROCK CREEK EMPLOYMENT

• 135 total employment
  – Mine 70
  – Mill 46
  – Administrative 19

• Year around
• No Camp
• Local hire priority from region
Coeur Alaska, Inc.
Kensington Gold Mine

- Target commercial production in 2007.
- Operate for at least 10 years.
- Invest over $120 million by Coeur Alaska.
- Current reserves are more than 1 million ounces.
- Produce around 100,000 ounces of gold per year.
Chuitna Coal Project

Chuitna Coal Mine
• 300 MM Mineable Tons in LMU 1
• Surface Facilities Infrastructure
  • Single Status Housing
  • Mine Access Road
  • Coal Transport Conveyor

Ladd Development
• Coal Export Terminal
• Bulkhead
• Logistics Center
Project Data

- Total Investment: $350-$400 million
- Earliest Construction Start 2007
- 1st Shipments 2010
- Peak Operating Workforce ± 350
- Rotating work shifts
- 12 MMTpy Mine production capacity

- 15 MMTpy coal transport capacity
- 15 MMTpy vessel loading capacity
- Cape Class draft (60’) vessel berth
- 1 MM Ton coal stockpile capacity
- Ladd receiving, warehousing, & distribution center
Donlin Creek Project
Donlin Creek Project 2005

- Program included 72,000 feet of new drilling
- Detailed environmental and engineering studies
- Wind power studies commenced
- Project employed ~ 111 Kuskokwim area residents
- Anchorage office expanded

<table>
<thead>
<tr>
<th>Resource Category</th>
<th>Tonnes (Millions)</th>
<th>Grade Gold g/t</th>
<th>Contained Ounces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measured</td>
<td>16.1</td>
<td>2.84</td>
<td>1,469,000</td>
</tr>
<tr>
<td>Indicated</td>
<td>151.1</td>
<td>2.75</td>
<td>13,360,000</td>
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<tr>
<td>Total (M&amp;I)</td>
<td>167.2</td>
<td>2.76</td>
<td>14,829,000</td>
</tr>
<tr>
<td>Inferred</td>
<td>156.0</td>
<td>2.72</td>
<td>13,643,000</td>
</tr>
</tbody>
</table>

Based on Novagold press release January 2006 @ cutoff grade of 1.2 g/t Au
Pebble Copper – Gold Project

• Located 19 air miles NW of Iliamna
Pebble Project Stats

• 2\textsuperscript{nd} largest copper and largest known gold resource in North America
• $100 million invested by end of 2006
• Current Inferred Resource (Spring 2006)
  – Copper – 40+ Billion pounds
  – Gold - 48+ million oz
  – Molybdenum
## SE AK Mining Projects

<table>
<thead>
<tr>
<th>Stage of Dev.</th>
<th>Name</th>
<th>Commodities</th>
<th>Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>Producer</td>
<td>Greens Creek</td>
<td>Pb,Zn,Cu,Ag,Au</td>
<td>Kennecott/Hecla JV</td>
</tr>
<tr>
<td>Producer</td>
<td>Haines Placers</td>
<td>Au</td>
<td>Various</td>
</tr>
<tr>
<td>Producer</td>
<td>Various</td>
<td>Rock, Sand and Gravel</td>
<td>Various</td>
</tr>
<tr>
<td>Construction</td>
<td>Kensington</td>
<td>Au, Ag</td>
<td>Coeur Alaska</td>
</tr>
<tr>
<td>Feasibility/Permit</td>
<td>Galore Creek</td>
<td>Cu,Au,Ag</td>
<td>NovaGold</td>
</tr>
<tr>
<td>Feasibility/Permit</td>
<td>Tulsequah Chief</td>
<td>Zn,Cu,Ag</td>
<td>Redfern Resources</td>
</tr>
<tr>
<td>Exploration</td>
<td>Niblack</td>
<td>Au,Ag,Cu,Zn</td>
<td>Niblack Mining Co.</td>
</tr>
<tr>
<td>Exploration</td>
<td>Union Bay</td>
<td>PGM</td>
<td>Pacific NW Capital</td>
</tr>
<tr>
<td>Exploration</td>
<td>Woewodski Island</td>
<td>Zn, Ag and Au</td>
<td>Bravo Venture Group</td>
</tr>
<tr>
<td>Other</td>
<td>Skagway Ore Ter.</td>
<td>Cu, Au concentrates</td>
<td>AIDEA/Sherwood</td>
</tr>
</tbody>
</table>

Other mining projects include:
- **Woewodski Island**: Zn, Ag and Au
- **Skagway Ore Ter.**: Cu, Au concentrates